

# CALANDRINIA VOLUBILIS BENTH. IN VICTORIA AND SOUTH AUSTRALIA.

by

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Plants of *Calandrinia volubilis* Benth. sensu stricto have now been collected in Victoria and voucher specimens have been placed in the National Herbarium of Victoria. Its occurrence in South Australia has been confirmed thus adding to its previously known distribution in N.S.W. where the lectotype was collected.

In the past this name has been misapplied to some extent. Ewart's (1931: 487) claim that it occurred in Victoria and was widespread was refuted by Willis (1972: 129) who stated that there were no voucher specimens of it from Victoria at the Melbourne Herbarium. He assumed that the records of *C. volubilis* were misdeterminations of *C. eremaea* Ewart. Black (1948: 348) listed the species for much of South Australia though he stated that he was unable to distinguish it from *C. pusilla* Lindl. (1848) non Barneoud (1847) = *C. eremaea* Ewart. Eichler (1965: 138) saw one of the syntypes of *C. volubilis* Benth. at the Kew Herbarium and designated it as the lectotype of the species. He confirmed that the plant that Black described as *C. volubilis* was actually *C. eremaea* Ewart and doubted the presence of *C. volubilis* Benth. in South Australia.

The first specimens of Bentham's *C. volubilis* from Victoria came to the National Herbarium of Victoria in November, 1974. The first of these was collected at Lake Ranfurley, a salt lake about 6 km west of Mildura, by Mr. J. H. Browne, of Red Cliffs, on 8th November, 1974. He found only three plants of it.

Mr. Browne made a second collection of this species in Victoria on 23rd November, 1974. Then he found that it was common over 4 hectares in the north-west corner of the Raak Plain near the ochre deposits i.e. about 50 km south-south-west of Mildura. It was found climbing on nearly every plant of Grey Glasswort (*Arthrocnemum*). The other dominant plant was Rounded Noon-flower (*Disphyma*). At Lake Ranfurley it was also growing in association with these two species.

Shortly after this, the first specimen of *C. volubilis* to be found in South Australia for over a hundred years was collected by R. J. Chinnock. It is his number 2404, collected in the Redcliff Survey area at 32° 42' S, 137° 51' E (i.e. approx. 22 km. south-south-east of Port Augusta) on 14th January, 1975. It was growing up *Atriplex* plants in an *Atriplex vesicaria*

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\* National Herbarium of Victoria.

association on the north side of the promontory and was common in the area. Specimens of this collection have been lodged at the State Herbarium, Adelaide and the National Herbarium of Victoria.

These are interesting occurrences. Not only do these specimens include the first records of this species in Victoria but they are the first specimens of the species to have been added to the collections in the National Herbarium of Victoria since the species was described by Bentham in *Flora Australiensis* (1863, 1:174). Prior to 1863 the species had been collected from two widely separated areas—(1) near the Darling River in N.S.W. by Beckler in 1860 and (2) Port Lincoln in South Australia by Wilhelmi. Both of these specimens were cited by Bentham when he described the species and are therefore the syntypes of the species.

The specimen labelled "*Calandrinia calyptrata* J. Hook. var. *volubilis*. Near R. [River] Darling. 1860. NE Exp. Dr. Beckler" and housed at the Kew Herbarium has been selected as lectotype by Eichler (1965:138). In 1860 Dr. Beckler was collecting plant specimens with the Victoria Exploring Expedition. For most of October and November of 1860 this Expedition was on or close to the Darling River, for much of the time in the region of Menindee (Willis 1962:255–56). In the Melbourne Herbarium there are three other specimens collected by Beckler at this time. They are a good match for the lectotype but are not to be regarded as syntypes.\*

The second syntype is at the National Herbarium of Victoria. It is labelled "*Calandrinia calyptrata* J. H.  $\beta$  *volubilis* Ferd. Mueller, Port Lincoln. Wilhelmi. *C. volubilis* Benth." There is a "B" on the back of the label, showing that it was seen by Bentham. This specimen matches the lectotype in all essential characters (flexuose pedicels and inflorescences, non-reticulate sepals, narrow obconical capsule at least twice as long as the calyx and deeply pitted seeds).

\* Only one of the three Beckler specimens which are now in National Herbarium of Victoria was sent to Bentham when he was writing the *Flora Australiensis*. It is MEL 48858, labelled "B. Cal. *volubilis* scarcely a var. of *C. pusilla* though the seeds are similarly pitted", "B. Cal. *pusilla* Lindl. seeds pitted" and "*Calandrinia volubilis* Benth. Yoyinga Mt. Nov. 5. 1860 Beckler." It is, as the two labels in Bentham's handwriting suggest, mixed material, being one fruiting shoot with three leaves which is apparently referable to *C. eremaea* Ewart (syn. *C. pusilla* Lindl.), three robust vegetative shoots (probably referable to *C. volubilis* Benth. and an envelope of broken fruiting material of *C. volubilis* Benth. This collection was not cited by Bentham with his original description of *C. volubilis*. "Yoyinga Mt." is apparently some kilometres from the Darling River. According to Willis (1962:256) it is in Scrope Range in the vicinity of Kokriega Well, about 43 miles (69 km.) east of Broken Hill. In the National Development 1:250,000 map this is spelt Scopes Range. The southernmost part of it is about 24 km. north of the base camp of the Victoria Exploring Expedition at Lake Pamamaroo (which is about 13 km. north of Menindee). "Yoyinga Mt." is thus some kilometres from the Darling River.

Apparently neither of the other two Beckler specimens in National Herbarium of Victoria was sent to Bentham by Mueller (neither bears a "B" in the corner of the label). They were collected on different dates (MEL 48859 on 31.x.1860 and MEL 48857 on 3.xi.1860). Both bear the label "Near Darling River", and the latter has in addition "Bambameroo" which is one of the variants used by Beckler for the base camp at Lake Pamamaroo. Both are also labelled "*Calandrinia calyptrata* J. Hook. var. *volubilis*."

It is probable that Mueller considered them to be identical with the specimen labelled "near the Darling River. Beckler" which is now at Kew, so did not send them to Bentham with the other specimens. However on the evidence available they can hardly be considered to be syntypes of *C. volubilis* Benth.

PLATE 11.

2 cm



1846. 516 Camp 10. 1846.  
*Calandrinia pusilla* Lindl.  
Sub-Tropical New Holland.

Lieut.-Col Sir T. L. Mitchell

Herb. Univ. Cantab.  
TYPE *Calandrinia pusilla* Lindl.  
in *Trans. Linn. Soc. Lond.* 380  
Herb. Univ. Cantab.

1846. 503 Camp 29. 1846.  
*Calandrinia pusilla* Lindl.  
Sub-Tropical New Holland.  
Lieut.-Col. Sir T. L. Mitchell.

Type of specimen of *Calandrinia pusilla* Lindl. and *C. eremaea* Ewart, Mitchell 503.

This material of *Calandrinia volubilis* Benth. was also compared with the type of *C. eremaea* Ewart (syn. *C. pusilla* Lindl.) as there has been confusion between these two species in the past in Victoria and South Australia.

When he described *C. eremaea* in the Flora of Victoria Ewart (1931:486-87) gave a brief description of the plant and stated that the name is to replace *C. pusilla* Lindl. (1848) which is invalid as Barneoud used that name for a Chilean species in 1847. The type of *C. eremaea* is therefore the type of *C. pusilla* Lindl. That was collected on the Maranoa River, Queensland on Mitchell's expedition in August, 1846 at camp 29 (also the site of the second depot), lat. 26° 15' S, long. 148° 06' E (see map IV Mitchell, 1848: opp. 133).

It is 2-6 cm. high (a smaller plant than *C. volubilis*) with straight pedicels and inflorescence stems, ovoid capsules 3.5 mm long and 2.5 mm broad (less than twice as long as broad) and shallowly pitted seeds. The latter character does not appear to be constant for the species. The eleven Victorian collections in the National Herbarium of Victoria in January, 1976 which are thought to be referable to *C. eremaea* are similar in most respects but include plants up to 25 cm. long, and three of the collections (from near Werribee River, *C. French*, x. 1890 (MEL 48668); Hills near Anthony's Cutting, *Bacchus Marsh*, *J. R. Tovey*, 3.xi.1910 (MEL 48669); and Moyston and Mount William, Sandhills among rocks to about 1200 ft., *D. Sullivan*, ix. 1879 (MEL 48677) have deeply pitted seeds.

At a magnification of approximately 140 the seeds of the Lake Ranfurley specimen of *C. volubilis* appear to be covered with a regular pattern of smooth tuberculate projections. The spaces between these projections are seen as deep pits at a magnification of 20. The seeds of the type of *C. pusilla* and *C. eremaea* show a similar pattern but the projections appear to be smaller and at a magnification of 20 shallow pitting only is observed—the seeds have a surface pattern but appear to have smooth edges.

It is therefore suggested that specimens of *C. volubilis* may be separated from those of *C. eremaea* by the following characters:

|                                     | <i>Calandrinia volubilis</i> Benth. | <i>C. eremaea</i> Ewart |
|-------------------------------------|-------------------------------------|-------------------------|
| Pedicels and inflorescence stems .. | Flexuose .. ..                      | ± straight              |
| Capsules .. ..                      | horn-shaped (obconical)             | ovoid                   |
| " length .. ..                      | 6-9 mm .. ..                        | 3-5 mm                  |
| " breadth (dry) .. ..               | 2 mm .. ..                          | 2-3 mm                  |
| " 1/b .. ..                         | 3 to 4 .. ..                        | 1½                      |
| Pitting on seeds .. ..              | deep .. ..                          | shallow or deep         |
| Plant .. ..                         | robust .. ..                        | slight                  |

PLATE 12.



*Calandrinia volubilis* Benth. from Lake Ranfurley.

That *C. volubilis* is not a common plant is emphasised by Eichler's statement (1965:138) that he had seen nothing like the lectotype in South Australia. The recent Victorian and South Australian specimens were collected from *Arthrocnemum* and *Atriplex vesicaria* associations after a wet winter. It may be that this is needed for flowering. October-November 1860 was apparently a good flowering season near Menindee in the region where Beckler's specimens were collected. Beckler wrote of Scrope Ranges, (37 km. north of Menindee and 23 km. north of their base camp at Lake Pamamaroo) "most of the shrubs growing in the hills are just now in blossom" (Willis, 1962: 251). It may also be that the flexuose inflorescences with many flexuose pedicels make the plants look abnormal and that it has been overlooked for that reason when it flowered. When not in flower the plant is probably less than 20 cm. high with crowded terete, succulent, linear leaves up to 44 mm x 11 mm in size (see Plate 2). Bentham's description (1863:174) fits the plant well.

This plant should be relatively easy to see when it is in flower and it is hoped that it may be collected again in the drier areas of Victoria, N.S.W. and South Australia before another century elapses.

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A NOTE ON THE RELATIONSHIP OF EUCALYPTUS RISDONII  
HOOK.F. VAR. ELATA BENTH. TO EUCALYPTUS  
DELEGATENSIS R. T. BAKER.

by  
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*Eucalyptus delegatensis* R. T. Baker, *Proc.Linn.Soc.N.S.W.* **25**:  
305–308 pl. XVI (1900).

*Eucalyptus risdonii* Hook.f. var. *elata* Benth. *Flora Australiensis* **3**: 203 (1866).

*Eucalyptus tasmanica* Blakely, *Key to the Eucalypts*: 225–226  
(1934) *quoad nom.*, non descr.

*Eucalyptus gigantea* Hook.f. *Lond.Journ.Bot.* **6**: 479 (1847).

*E. risdonii* Hook.f. is a small tree or mallee-like shrub restricted to lowland open forest below 150 metres elevation in the south-east of Tasmania. With *E. tenuiramis* Miq., a larger tree of wider distribution, extending to altitudes near 450 metres, it forms the Superspecies *Risdonii* of Pryor and Johnson.

*E. risdonii* var. *elata* was described by Bentham from material collected by R. Gunn in 1841 from the western shores of Lake St. Clair, central west Tasmania, a locality outside the range of Superspecies *Risdonii* and 300 metres higher. This taxon is listed as a synonym of *E. tenuiramis* by Pryor and Johnson (1971).

Through the courtesy of Mr. G. M. Chippendale who was Australian Botanical Liaison Officer at Herbarium Kewensis, August 1972 to August 1973, I was able to examine photographs of eight sheets of the bulk collection 1095 of Gunn, upon which Bentham based his description. None of the material is assignable to the Superspecies *Risdonii*. Clearly it belongs with material now referred to *E. delegatensis*.

Bentham apparently believed the trees from which the material was collected, at Lake St. Clair, to be convarietal with a species which occurs commonly in the south-east of the State. Willis (1967:134) has shown this latter species to be *E. tenuiramis* Miq., vice *E. tasmanica* Blakely, in part. Present day knowledge indicates that no representatives of the Superspecies *Risdonii* occur within a significant distance of Lake St. Clair.

Nomenclaturally, Blakely based his *E. tasmanica* on Bentham's variety so that the names *E. tasmanica* and *E. delegatensis* refer to one and the same species but the description obviously belongs to the larger forms of *E. risdonii* (*E. tenuiramus*) common in S.E. Tasmania. It is of interest that Blakely did not cite Lake St. Clair as a locality for his *E. tasmanica*.

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